COPY OF PREVIOUS APPLICATION (CHANGES IN RED) RESUBMITTED 10/27/80

FORM NRC-313 I (1-79) 10 CFR 30

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE
INDUSTRIAL

See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D.C. or 7915 Eastern Avenue, Silver Spring, Maryland.

1. APPLICATION FOR (*Check and/or complete as appropriate*)
   - a. NEW LICENSE
   - b. AMENDMENT TO LICENSE NUMBER
   - c. RENEWAL OF LICENSE NUMBER 24-13649-01

2. APPLICANT'S NAME (*Institution, firm, person, etc.*)
   MAWD, INC.
   TELEPHONE NUMBER - AREA CODE - NUMBER EXTENSION
   (816) 474-5656

3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION
   Earl J. Wright, M.D.
   TELEPHONE NUMBER - AREA CODE - NUMBER EXTENSION
   (816) 474-5656

4. APPLICANT'S MAILING ADDRESS (*Include Zip Code*)
   2700 Hospital Drive
   Suite 100 - PBN
   North Kansas City, Missouri
   64116

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED (*Include Zip Code*)
   same

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL
(*See Items 16 and 17 for required training and experience of each individual named below.*)

	FULL NAME	TITLE
a.	Earl J. Wright, M.D.	PATHOLOGIST - DIRECTOR
b.		
c.		

7. RADIATION PROTECTION OFFICER
   Earl J. Wright, M.D.
   Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.
   See attachment

8. LICENSED MATERIAL

LINE NO	A. ELEMENT AND MASS NUMBER	B. CHEMICAL AND/OR PHYSICAL FORM	C. NAME OF MANUFACTURER AND MODEL NUMBER (*If Sealed Source*)	D. MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
(1)	See attached listing			
(2)				
(3)				
(4)				

	E. DESCRIBE USE OF LICENSED MATERIAL
(1)	See attached listing
(2)	
(3)	
(4)	

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8101260076

9. STORAGE OF SEALED SOURCES

LINE NO.	A. CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED	B. NAME OF MANUFACTURER	C. MODEL NUMBER
(1)	NOT APPLICABLE (No sealed sources on site)		
(2)			
(3)			
(4)			

10. RADIATION DETECTION INSTRUMENTS

LINE NO.	A. TYPE OF INSTRUMENT	B. MANUFACTURER'S NAME	C. MODEL NUMBER	D. NUMBER AVAILABLE	E. RADIATION DETECTED (alpha, beta, gamma, neutron)	F. SENSITIVITY RANGE (milliroentgens/hour or counts/minute)
(1)	In vitro Assaying	Searle Analytic	1195	1	Gamma	See Attachment
(2)	In vitro Assaying	Abbott ~~Autologic~~ ANSF (See ENCLOSED)	07-0938	1	Gamma	See Attachment
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

X a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

Tracor Analytic
1842 Brummel Drive
Elk Grove Village, Ill. 60007

X b. CALIBRATED BY APPLICANT (Attached)

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

(Preventive Maintenance every 6 months Local Service Man on Call as Needed)

12. PERSONNEL MONITORING DEVICES

A. TYPE (Check and/or complete as appropriate)	B. SUPPLIER (Service Company)	C. EXCHANGE FREQUENCY
~~XX FILM BADGE~~	~~R.S. Landauer, Jr. & Company Div. Technical Operations, Inc Glenwood Science Park Glenwood, Illinois 60425~~	~~X MONTHLY~~
☐ (2) THERMOLUMINESCENCE DOSIMETER (TLD)		☐ QUARTERLY
☐ (3) OTHER (Specify):		☐ OTHER (Specify):

13. FACILITIES AND EQUIPMENT (Check were appropriate and attach annotated sketch(es) and description(s).

X a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (include filtration, if any), ETC.

☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.

☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.

☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

Not Applicable

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE.

Liquids aspirated directly into H_2O trap and flushed with greater than required amount of H_2O. Solids disposed by city trash collection.

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10.7-12

CONTROL NO. 80259

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. RADIATION PROTECTION PROGRAM. Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures *(if needed)*, day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.

16. FORMAL TRAINING IN RADIATION SAFETY. Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.

a. Principles and practices of radiation protection.

b. Radioactivity measurement standardization and monitoring techniques and instruments.

c. Mathematics and calculations basic to the use and measurement of radioactivity.

d. Biological effects of radiation.

17. EXPERIENCE. Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

WARNING.—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED *(See Section 170.31, 10 CFR 170)* $110.00	b. CERTIFYING OFFICIAL *(Signature)*
	c. NAME *(Type or print)* Earl J. Wright, M.D.
(1) LICENSE FEE CATEGORY: IN VITRO ONLY INDUSTRIAL	d. TITLE Pathologist-Director
(2) LICENSE FEE ENCLOSED: $ (sent with previous app.) dated 4/7/80	e. DATE 10-27-80

FORM NRC-313 I (1-79)

10.7-13

CONTROL NO. 80259

MAWD/BIO-SCIENCE SERVICE CENTER

RENEWAL
LICENSE #24-13649-01

Attachment
Refer To:
Form NRC 313
Question No. 5

5) RADIOACTIVE MATERIAL

ELEMENT/ MASS NUMBER	CHEMICAL FORM	MAXIMUM MILLICURIES	USES OF MATERIALS
Iodine 125	125-I Human Thyroid	1	In vitro assay of human thyroid stimulating hormone.
Iodine 125	125-I Digoxin Tyramine Analog	1	In vitro assay of digoxin level.
Iodine 125	125-I Cortisol (Tyramine derivative)	1	In vitro assay of cortisol.
Cobalt 57	57-CO-Vitamin B-12	1	In vitro assay of Vitamin B-12.
Iodine 125	Prolactin	1	In vitro assay of prolactin.
Iodine 125	Folate	1	In vitro assay of folate.
Iodine 125	B-HCG	1	In vitro assay of B-HCG.
Iodine 125	ANY	10	In vitro assay, future introduction new tests (now under evaluation.

M-1(6/31/25)
30 Nov 85

Issued: 7/6/82
CH:djh

CLINICAL PATHOLOGY

MFMD INC. MEDICAL LABORATORY

PATHOLOGIC ANATOMY

P. O. BOX 11160 • KANSAS CITY, MISSOURI 64119
PHONE: (816) 474-5656

W.R. McPhee, M.D. L.A. Allen, M.D. E.J. Wright, M.D. R.L. Brockenridge, Jr., M.D.

RADIATION PROTECTION

I. PERSONNEL:

A. RADIATION SAFETY RULES:

1. Eating, storing and preparing food or applying cosmetics is forbidden in any area where radioactive materials are stored or used.

2. Direct contact with radioactive materials must be avoided by using protective lab coats and employing safety pipettors.

3. All spills of radioactive materials must be contained immediately, and then decontaminated using the established procedure (See Section III).

4. RIA and other radiological work should be conducted in the designated radioisotope area of the lab only.

5. The bench top used for radioactive work is covered with absorbent paper backed by plastic. This will prevent contamination of the bench top and provide easy disposal of spills.

6. At the close of a work period, the laboratory work surfaces should be carefully monitored.

7. Before leaving the laboratory, after working with radioactive materials, each person should wash his hands thoroughly.

8. All laboratory glassware and equipment should be properly decontaminated after use before being returned to general usage. Glassware which contained long-lived isotopes should be properly marked and thereafter be used exclusively for such purposes.

B. REQUIRED READING FOR LABORATORY PERSONNEL WORKING IN RADIOISOTOPES:

1. RECOMMENDATIONS OF THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION, Pergamon Press, 1964.

2. Title 10 - Standards for Protection Against Radiation - Part 20 - USAEC.

(Continued)

RADIATION PROTECTION

II. STORAGE OF RADIOACTIVE MATERIAL:

A. Complete and up to date records are kept of radioactive material receipts, transfer, and disposal.

B. All radioactive materials are stored in their original containers which are clearly marked with their activity. These are all stored in a refrigerator marked by Radiation Symbol.

III. DECONTAMINATION:

A. PERSONNEL:

1. Persons who have handled radioactive contaminated material will wash their hands thoroughly with soap and water before leaving isotope area. If the skin becomes contaminated, wash with large amounts of water and Contrad 70 or Radiacwash. If large areas of the body are contaminated, showering will be necessitated.

2. Contaminated protective clothing must be removed and monitored. If the count is greater than 5000 CPM store until the activity has fallen to a minimal level.

B. EQUIPMENT:

1. Equipment must be decontaminated using Contrad 70 and large amounts of water. If possible, it can be stored until activity has decayed to a minimal level. These must be monitored before being put back into use. Materials used in decontamination will themselves become contaminated, i.e. buckets, water, sponges, clothing, rags, etc. The water is aspirated down the drain with large amounts of additional water; disposable materials are disposed of in the radioactive container. Buckets should be rinsed with Conrad 70 and aspirated before being washed in the ordinary lab wash.

C. DECONTAMINATION PROCEDURE:

1. Contamination - If there is a liquid spill, quickly surround it with absorbent material such as a sponge, paper towel, and even a lab coat.

2. Isolation - Mark off the containment area to prevent radioactive material from spreading to other areas.

(Continued)

RADIATION PROTECTION

3. Evaluation - After containment and isolation, identify the type of contamination. For instance, gamma contamination with 60 days half-life results from Iodine^{125} spills and 270 days of half-life results from Cobalt^{57} spills. Labels on the sample container show the names of isotopes.

4. Decontamination - Don decontamination apparel (rubber gloves, galoshes, plastic apron). Wash the contaminated surface with water/detergent soaked paper towels. Then, wipe dry. Repeat this procedure until the level of contamination is acceptable; for clinical laboratories, this should be about 300 count per minute. Materials used in decontamination procedure will in themselves become contaminated, i.e. buckets, water, sponges, clothing, rags, etc. The contaminated materials must be stored until count is reduced to a level compatible with disposal in the regular trash.

5. Wipe-Test - It is necessary to conduct wipe-tests after decontamination because the levels of radioactivity in the materials used in this lab are undetectable by the Geiger Muller detector. The wipe test involves wiping the decontaminated surfaces with a one-inch diameter filter paper, and then counting the filter paper disc.

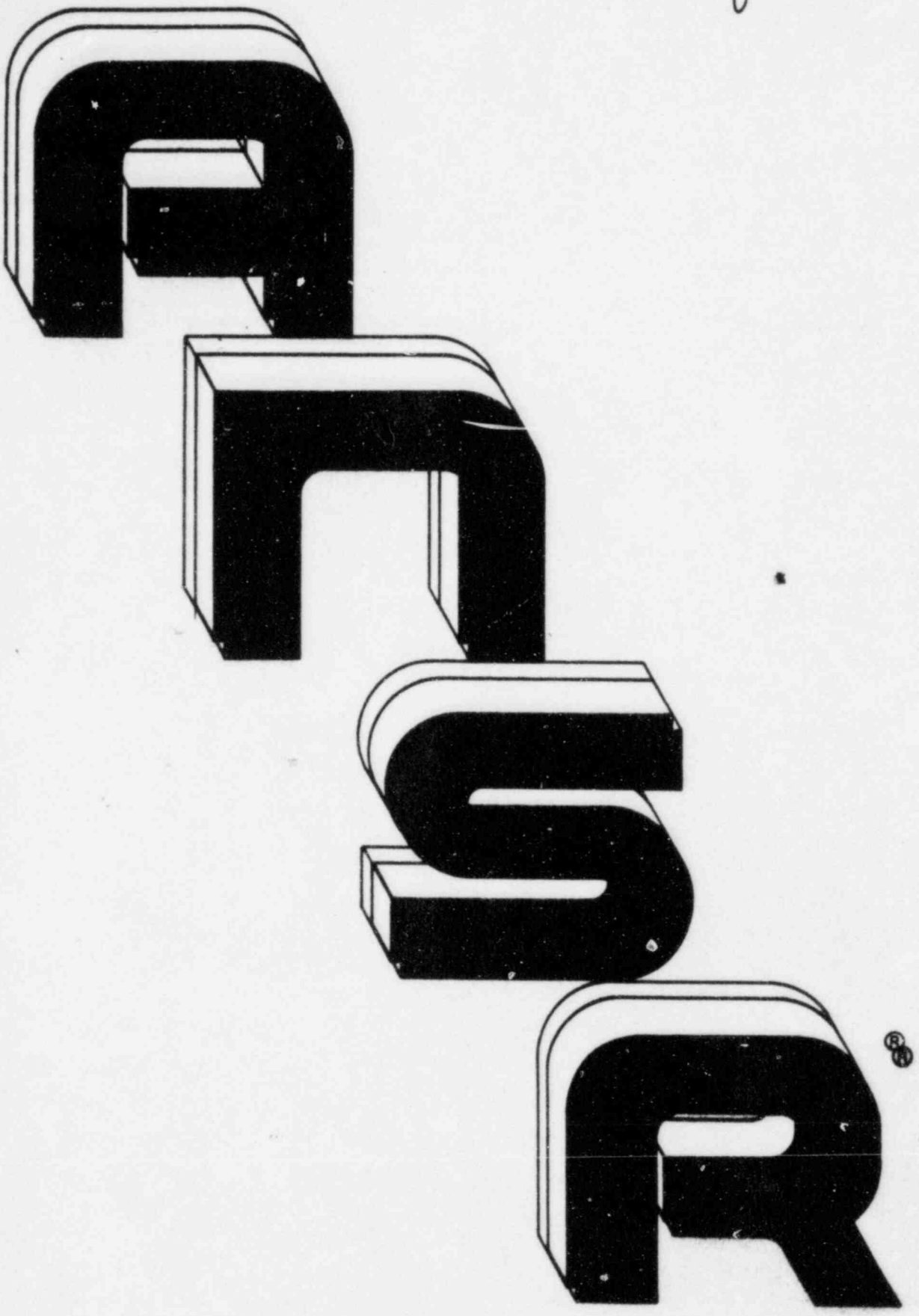
IV. DISPOSAL OF RADIOACTIVE WASTES:

A. Liquid wastes are aspirated directly into the drain with copious amounts of water. At the end of a procedure requiring aspiration of liquid wastes, follow with 500 ml of a 10% solution of Contrad 70 in water.

B. Solid wastes (disposable tubes, pipettes, beakers, paper) are collected in one particular waste can which is lined with a double plastic bag. This is tied securely and disposed of with ordinary trash disposal.

Operator's Manual

Check stock for Jan



ABBOTT LABORATORIES
Diagnostics Division

Gamma Counter

Principles of Operation

The ANSR is programmed at the factory to store assay protocol for four different types of data reduction:

SINGLE POINT ASSAYS
LOG-LOGIT – CURVE FIT ASSAYS
HEPATITIS ASSAYS
POINT TO POINT ASSAYS

The instrument will also allow sample counting without data reduction.

The memory has the capacity to store assay protocol for a total of 14 assays in addition to count only.

A microprocessor is used to control tube movement and data reduction. The test tubes are automatically removed, one at a time in sequence, from the tube carrier and placed in a detector for counting. The detector is comprised of a sodium iodide crystal and a photomultiplier tube. The crystal converts the radioactive disintegrations into light pulses and the photomultiplier tube converts the light pulses to electrical pulses having an amplitude relative to the energy level of the radioactive disintegration.

The pulses are then amplified and compared to an upper and lower threshold established for each isotope or KeV level. The pulses (counts) per period of time exceeding the lower threshold but not exceeding the upper threshold are counted and represent the counts for the respective test tube inserted into the detector well.

At the end of the preset time period the counted test tube is automatically removed from the detector well, placed back into the tube carrier and the next tube in sequence is moved to the detector to initiate its counting operations.

The principles employed by the data reduction circuitry are discussed in the Description of Assay Protocol and Calculations (Refer to Page 30).

Background is automatically subtracted from each sample count. The background is determined at the following times:

a) Each time the instrument is calibrated, either automatically at 5:00 AM or on command, a ten minute background count is obtained using the I-125 window (15-70KeV).
b) Each time the window is changed, a ten minute background count is obtained prior to running an assay using that window.

Background is printed in counts per minute.

At the completion of each assay a ten second background test is performed to check for contamination. The ten second test uses the same window as the preceding assay and compares the ten second count to one half of the last background counts per minute. If the ten second count exceeds one half the preceding one minute background, a message of HIGH BACKGROUND is printed to inform the user of this condition before proceeding.

Specifications

SIZE	23" D x 43" W x 19" H (58 cm D x 109 cm W x 48 cm H)
WEIGHT	120 lbs. (54.5 kg)
DETECTOR	1.5 x 1.5 NaI (Tl)
CAPACITY (unattended)	240 test tubes
SHIELDING	½" lead around detector
VOLTAGE REQUIREMENTS	100, 115, 200 or 230 VAC ± 10%
POWER CONSUMPTION	Less than 600 VA
EFFICIENCY	I-125 (15-70 KeV) 65% min.
BACKGROUND	I-125 (15-70 KeV) 100 CPM max.
LEAKAGE CURRENT	Less than 500 microamps
TEST TUBE SIZE	12 mm x 75 mm or 13mm x 100mm
SELECTABLE THRESHOLD AND WINDOW	1 KeV to 2 MeV

Automatic self calibrating using I-129 as calibration source

DATA REDUCTION

Four types of data reduction can be performed in addition to count only calculations.

SINGLE POINT ASSAYS – e.g. Triobead®
LOG-LOGIT ASSAYS – e.g. Abbott Digoxin
HEPATITIS ASSAYS – e.g. Ausria®
POINT TO POINT ASSAYS – e.g. Abbott CEA

The protocol for 14 individual assays can be stored in the memory. (Refer to ADD ASSAY Page 16).

TEMPERATURE

The ANSR Gamma Counter has been designed to operate in a standard heated/air conditioned laboratory. Temperature in the laboratory should be kept above + 15° C but should not exceed + 30° C.

ELECTRICAL INTERFERENCE

The ANSR has been designed to operate within the conducted susceptibility limits of the McDonnell Douglas Electromagnetic Compatibility Standard for Medical Devices MDS-201-0004 Rev. A, May 1976.

Calibration

When the calibration sample has been inserted in the storage well and the cover has been securely replaced, the ANSR should be allowed to warm up for two hours.

After the warm up period the ANSR is ready to be calibrated.

PURPOSE: Prepares the ANSR for running assays. Provides data which can be used to determine whether or not the instrument is operating properly.

CHARACTER DISPLAY	OPERATOR INPUTS	PRINT-OUT
ANSR (TIME)	Press Calibrate (CAL) key.	
CALIBRATE		DATE: 1 2 81 TIME: 5 0 CALIBRATE HV = 127 COUNT = 19335 CHI SQ = 1.18 BACKGROUND CPM = 35
COMMAND ACCEPTED		

The calibration sample will remain in the storage well inside the ANSR.

The calibration data on the Print-Out is used to determine whether or not the ANSR is performing accurately. Check the data to insure it falls within the following tolerance levels:

The HV reading should fall between 100 and 156.

The count figure should be greater than 15,000.

The background CPM should be less than 100.

The CHI square data can be used to determine a confidence level for the count data by indicating whether or not a particular set of counts fit as assumed distribution.

A series of five - ten second counts are performed and a CHI square is determined based on this count data.

To determine the confidence level for the count data compare the CHI square to this table.

PROBABILITY	0.99	0.95	0.90	0.50	0.10	0.05	0.01
Number of Determinations = 5							
CHI^2 VALUE	0.297	0.711	1.064	3.357	7.779	9.488	13.227

CHI square figures falling within the blue region have a high probability that the observed distribution is proper.

If the calibration data are not within these limits, repeat the calibration process. If the second data remains outside of these limits call service. (Refer to Page 58).

Once the ANSR has been initially calibrated it will self-calibrate daily at 5:00 A.M.

At this point an assay can be added (Refer to ADD ASSAY Page 16) or an assay can be counted (Refer to RUN ASSAY Page 26).

ANSR® Interpretation of CHI²

Probability	0.99	0.95	0.90	0.50	0.10	0.05	0.01
CHI²	0.297	0.711	1.064	3.357	7.779	9.488	13.277

Questions have been raised regarding the interpretation of the CHI² chart shown above and the statistics upon which it is based. The following explanation details the usefulness of the chart and how it may be interpreted in conjunction to daily operation with the ANSR instrument.

When using the ANSR daily, the CHI² value may be outside the solid blue range shown on the Probability chart above. This is normal and the user should not be alarmed.

CHI² is a calculated statistical value used in nuclear counting, as well as in other fields to determine certain inferences about a series of readings.

The ANSR calculates the CHI² value by recording a small sample of counts (5), and by additionally calculating how close these counts are to the average. CHI² values that fall below 1.064, decreasing to 0.0, are considered to be satisfactory values. These readings indicate that the instrument is reading a particular series of samples closer to the average than is normally expected.

Since CHI² is a "statistically random" mathematical value, it is expected that the ANSR will read different CHI² values for each series of readings of the same sample.

As a result, a single reading of CHI² is not indicative of an upward or downward trend. The ANSR operator's manual suggests that a second CHI² value be determined when the initial value falls outside the blue range. Of further note, the statistical chance for two *consecutive* CHI² readings to be both greater than 7.779 is approximately one percent.

When an upward CHI² trend is suspected, the ANSR should calculate at least 100 CHI² values. Should the instrument indicate two *consecutive* CHI² values that are greater than 7.779 during the initial 100 readings, the ANSR should then be monitored closely, and the incidence rate of these consecutive high readings should be recorded. If the instrument records two *consecutive* high readings more than two or three times over the 100 readings, call the Abbott Technical Service Office for further assistance. The toll-free number is (800) 527-1869.

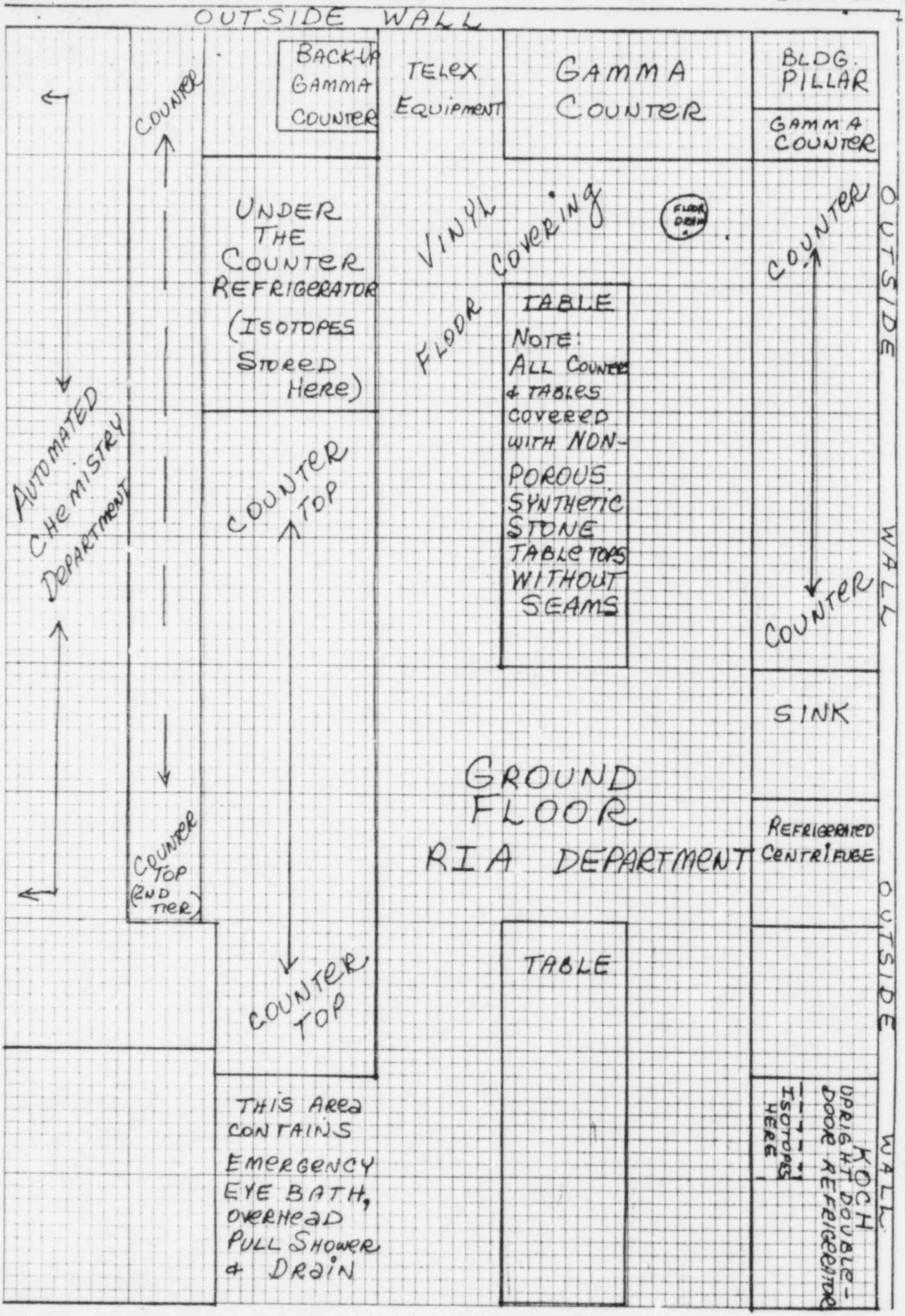
North Chicago, IL 60064

87-6063/1.5 Dec., 1981

CONTROL NO. 80259

Printed in U.S.A.

AEC LICENSE RENEWAL #24-13649-01 Refer to: Form NRC 313 1 - Ques. No. 13a



AEC LICENSE RENEWAL
LICENSE #24-13649-01
Refer to: Form NRC 313 1
Questions No. 16 & 17

CURRICULUM VITAE

Earl J. Wright, M.D.

DATE OF BIRTH: 18 October 1934

PLACE OF BIRTH: Kansas City, Missouri

WIFE'S NAME: Beverly (Marvel) Wright

CHILDREN: Ellen C. Wright 3/11/62
Warren J. Wright 8/3/65

ADDRESS: 5213 N.W. 82nd Terrace
Kansas City, Missouri 64151

PHONE: 741-2099

PREPARATORY SCHOOL:	Central High School Kansas City, Missouri	1949-1952
PREMEDICAL SCHOOL:	Westminster College Fulton, Missouri B.A.	1952-1956
MEDICAL EDUCATION:	University of Kansas School of Medicine Kansas City, Kansas M.D.	1956-1960
INTERNSHIP:	Kansas City General Hospital Kansas City, Missouri	1960-1961
RESIDENCY:	Kansas City General Hospital Kansas City, Missouri	1961-1963
	Wesley Medical Center Wichita, Kansas	1963-1965

RESIDENCY IN: Anatomical & Clinical Pathology

HOSPITAL APPOINTMENTS:	North Kansas City Memorial Hospital North Kansas City, Missouri	Consultant
	Cushing Memorial Hospital Leavenworth, Kansas	Consultant
	St. John Hospital Leavenworth, Kansas	Consultant
	Spelman Memorial Hospital Smithville, Missouri	Consultant
	Liberty District Hospital Liberty, Missouri	Consultant
	Wright Memorial Hospital Trenton, Missouri	Consultant
	Lexington Memorial Hospital Lexington, Missouri	Consultant
	Excelsior Springs City Hospital Excelsior Springs, Missouri	Consultant

(continued)

TEACHING APPOINTMENTS:	None.	
MILITARY SERVICE:	Captain, U.S. Army Medical Corps	May 1966- May 1968
LICENSED TO PRACTICE IN KANSAS	State of Kansas July 1960	Certificate #12613
LICENSED TO PRACTICE IN MISSOURI	State of Missouri July 1962	Certificate #28944
BOARD CERTIFIED:	American Board of Pathology in Anatomical and Clinical Pathology	Nov.1965
ORGANIZATIONS:	College of American Pathologists American Society of Clinical Pathologists Clay County Medical Society American Medical Association	

PUBLICATIONS:

1) Wright, E.J., and Lauer, D.: Familial Periodic Paralysis; Missouri Medical Journal, 58:942-944, September, 1961.

2) Wright, E.J., and Cawley, L.P.: Localization and Quantification of Lactic Dehydrogenase (LDH) Isoenzymes by Agar-gel Electrophoresis.

3) Cawley, L.P., and Wright, E.J., and Bell, H.E.: Clinical Enzymology Pre-Workshop Manual. Manual prepared for Council on Clinical Chemistry, American Society of Clinical Pathologists, Bal Harbour, Florida, October 24-25, 1964.

4) Cawley, L.P., Bell, H.E.; Wright, E.J.: Workshop on Clinical Enzymology, Technical Manual. Technical manual prepared for the Council on Clinical Chemistry, American Society of Clinical Pathologists, Bal Harbour, Florida, October 24-25, 1964.

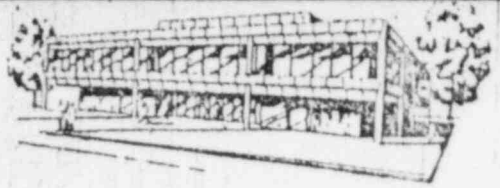
ADDENDUM:

Course Taken - Radioisotopic Pathology - Chicago, Illinois - April 16-21, 1974
TEST TAKEN - Radioisotopic Pathology - Miami, Florida - May 22-24, 1974

Previous Experience:

WESLEY MEDICAL CENTER -	2 years	In vivo and in vitro diagnostic testing
MAWD, INC.	12 years	In vivo and in vitro diagnostic testing (NOTE: All in vivo testing performed at Liberty & North Kansas City Memorial Hospitals only).

REFER TO: FORM NRC 313-1 ATTACHMENT #1



AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS
2100 WEST HARRISON STREET · CHICAGO, ILLINOIS 60612 · (312) 738-1336

RECORD OF ATTENDANCE AT CONTINUING EDUCATION PROGRAM

EARL J. WRIGHT, M.D.
Name – Number

REVIEW COURSE IN RADIOISOTOPIC PATHOLOGY
Program Title

EC 809 — EDUCATIONAL CENTER — APRIL 17-21, 1974 — ADVANCED
Program Number — *Place and Date(s)* — *Program Level*

29 — SEMINAR
Hours of Instruction — *Format* — *Continuing Education Units*

JOSEPH C. SHERRICK, M. D.
COMMISSIONER, COMMISSION ON CONTINUING EDUCATION

Continuing education programs of the American Society of Clinical Pathologists are accredited by the AMA Council on Medical Education

ASCP FORM 6

AEC LICENSE RENEWAL #24-13649-91
ATTACHMENT
REFER TO: Form NRC 313 1
Questions No. 16 & 17

CONTROL NO. 80259

AEC LICENSE RENEWAL #24-13649-01
Refer to: NRC 313 1 - Questions #16 & 17

ATTACHMENT #1

Form AEC-313a
(2-73)
Page 3

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR BYPRODUCT MATERIAL LICENSE—MEDICAL

SUPPLEMENT A—PRECEPTOR STATEMENT

This page is to be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each. Page 2 may be used for comments and additional information.

10. NAME AND ADDRESS OF APPLICANT PHYSICIAN (Include ZIP Code)

Earl J. Wright, M.D.
MAWD, Inc. - 2700 Hospital Dr - Suite 100 PBN - North Kansas City, Mo./ 64116

11. CLINICAL TRAINING AND EXPERIENCE OF PHYSICIAN NAMED IN ITEM 10 ABOVE

(A) ISOTOPE	(B) CONDITIONS DIAGNOSED OR TREATED	(C) No. Cases Observed (See 1 in key below)	(D) No. Cases Involving Personal Participation (See 2 in key below)
I-131 or I-125	Diagnosis of thyroid function	50	50
	Determination of blood and blood plasma volume	60	60
	Liver function studies	15	15
	Fat absorption studies	20	20
	Kidney function studies	35	35
	In vitro studies	200	200
Cr-51	Gastrointestinal protein loss studies	2	2
	Determination of red blood cell volume and studies of red blood cell survival	34	34
Fe-59	Iron turn over studies	5	5
Co-58or Co-60	Intestinal absorption studies	0	0
K-42	Potassium space determinations	0	0
I-131	Thyroid imaging	25	25
	Brain tumor localization and cardiac imaging	15	15
	Cisternography	0	0
	Lung imaging	20	20
	Liver imaging	15	15
	Kidney imaging	0	0
	Placenta localization	0	0
Cr-51	Placenta localization	0	0
	Spleen imaging	10	10
Au-198	Liver imaging	0	0
Hg-197	Brain imaging	5	5
	Kidney imaging	35	35
Hg-203	Brain imaging	0	0
Sr-85	Bone imaging	0	0
Tc-99m	Brain imaging	0	0
	Thyroid imaging	0	0
	Salivary gland imaging	0	0
	Blood pool imaging	0	0

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Refer to: NRC 313 1 - Questions No. 16 & 17

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APPLICATION FOR BYPRODUCT MATERIAL LICENSE—MEDICAL

SUPPLEMENT A—HUMAN USE

(A) ISOTOPE	(B) CONDITIONS DIAGNOSED OR TREATED	(C) No. Cases Observed (See 1 in key below)	(D) No. Cases Involving Personal Participation (See 2 in key below)
Tc-99m	Placenta localization	0	0
	Liver and spleen imaging	0	0
	Lung imaging	0	0
	Bone imaging	0	0
Xe-133	Blood flow studies and pulmonary function studies	0	0
Se-75	Pancreas imaging	0	0
P-32	Treatment of polycythemia, leukemia, and Bone metastases	0	0
	Intracavitary treatment	0	0
I-131	Treatment of thyroid carcinoma	2	2
	Treatment of hyperthyroidism and cardiac condition	3	3
Au-198	Intracavitary treatment	0	0
Co-60 or CO-137	Interstitial treatment	0	0
	Intracavitary treatment	0	0
Ir-192	Interstitial treatment	0	0
Co-60 CO-137	Teletherapy treatment	0	0
Sr-90	Treatment of eye disease	0	0

Key to Columns (C) and (D) above

1. Observation should consist of observing radioisotope administration techniques and discussion with preceptor the case histories to establish most appropriate diagnostic and/or therapeutic procedure, limitation, contraindications, etc.

2. Personal participation should consist of (a) supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation on dosage to be prescribed, (b) collaboration in calibration of the dose and the actual administration of the dose to the patient, including calculation of the radiation dose, related measurements, and plotting of data, and (c) adequate period of training to enable the physician to manage radioactive patients and to follow patients through diagnosis and/or the course of treatment.

12. DATES AND TOTAL NUMBER OF HOURS OF CLINICAL RADIOISOTOPE TRAINING June, 1963-June 1965 - 600 hours

13. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF Leo P. Cawley, M.D.

AT Wesley Hospital & Medical Center (Institution) Name and Address Wich.Ks. 19-0041-01 (Byproduct Material License Number)

Leo P. Cawley M.D. (Signature of Preceptor)

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